ORDER NO. SD83072589C2

Service Manual

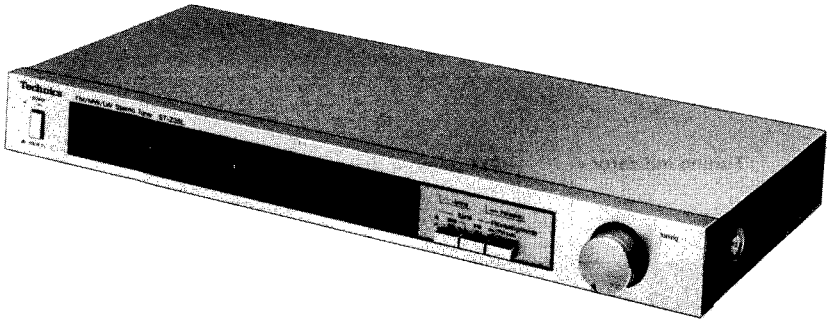
FM/MW/LW Stereo Tuner

ST-Z35L

[EX], [EK], [EF], [EB]

ST-Z35L(K)

[EX], [EK], [EF], [EB]



* The colors of this model include silver and black.
* The black type model is provided with (K) in the Service Manual.

Areas

* [EX] is available in Switzerland and Scandinavia.
* [EK] is available in United Kingdom.
* [EF] is available in France.
* [EB] is available in Belgium.

Specifications (DIN 45 500)

(Specifications are subject to change without notice for further improvement.)

■ FM TUNER SECTION

Frequency range	88~108 MHz
Sensitivity	0.95 μV (IHF, usable)
S/N 30 dB	1.0 μV (75Ω)
S/N 26 dB	0.9 μV (75Ω)
S/N 20 dB	0.8 μV (75Ω)
IHF 46 dB stereo quieting sensitivity	22 μV/75Ω
Total harmonic distortion	
MONO	0.15%
STEREO	0.3%
S/N	
MONO	70 dB (78 dB, IHF)
STEREO	65 dB (70 dB, IHF)
Frequency response	20 Hz~15 kHz, +0.5 dB~ −1.5 dB
Alternate channel selectivity (±400 kHz)	65 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	40 dB
IF rejection at 98 MHz	70 dB
Spurious response rejection at 98 MHz	70 dB
AM suppression	50 dB
Stereo separation	
1 kHz	40 dB
10 kHz	30 dB
Carrier leak	
19 kHz	−30 dB (−35 dB, IHF)
38 kHz	−45 dB (−50 dB, IHF)
Channel balance (250 Hz~6,300 Hz)	±1.5 dB
Limiting point	1.2 μV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	
MW	525~1605 kHz
LW	145~350 kHz
Sensitivity (S/N 20 dB)	
MW	20 μV, 300 μV/m
LW	50 μV
Selectivity (±10 kHz)	
MW	27 dB
LW	35 dB
Image rejection	
MW	40 dB (1000 kHz)
LW	40 dB (250 kHz)
IF rejection	
MW	65 dB (1000 kHz)
LW	40 dB (250 kHz)

■ GENERAL

Output voltage	0.3V (0.6V IHF)
Power consumption	6W
Power supply	
For United Kingdom	AC 50 Hz/60 Hz, 240V
For continental Europe	AC 50 Hz/60 Hz, 220V
Dimensions (W×H×D)	430 × 53 × 220 mm (16-15/16" × 2-3/32" × 8-5/8")
Weight	2.2 kg (4.9 lb.)

Technics

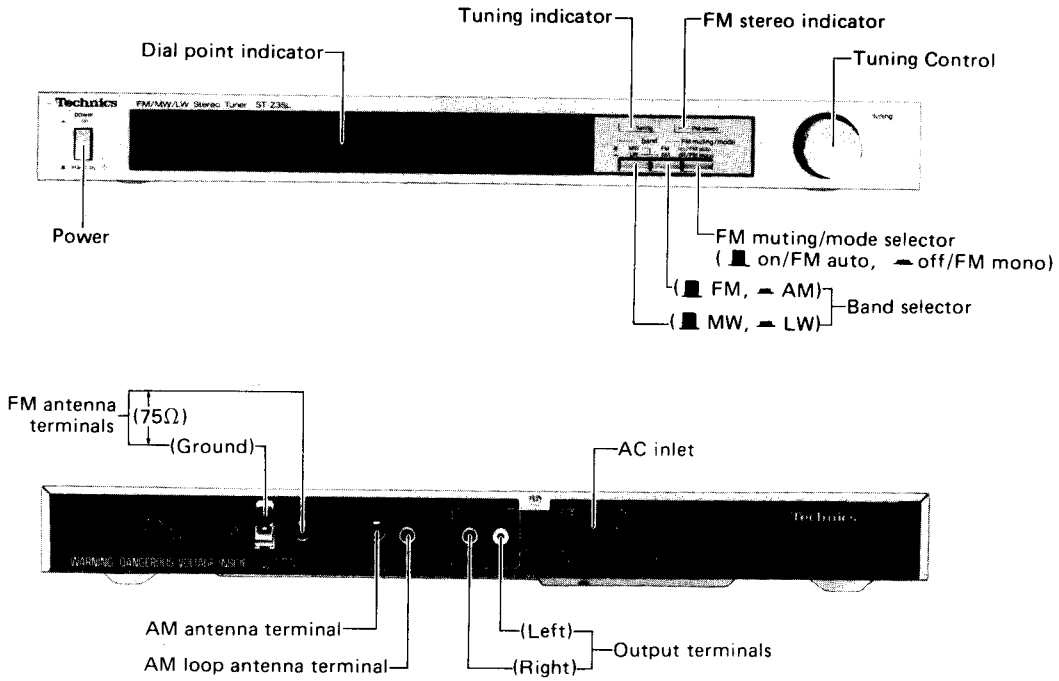
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

ST-Z35L

■ CONTENTS

	Page
LOCATION OF CONTROLS	2
AM LOOP ANTENNA	2
DISASSEMBLY INSTRUCTIONS	3
DIAL CORD INSTALLATION GUIDE	4
MEASUREMENTS AND ADJUSTMENTS	4 ~ 6
RESISTORS AND CAPACITORS	6
CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM	7, 8
BLOCK DIAGRAM	9, 10
SCHEMATIC DIAGRAM	11 ~ 13
REPLACEMENT PARTS LIST	14
EXPLODED VIEW	15, 16

■ LOCATION OF CONTROLS

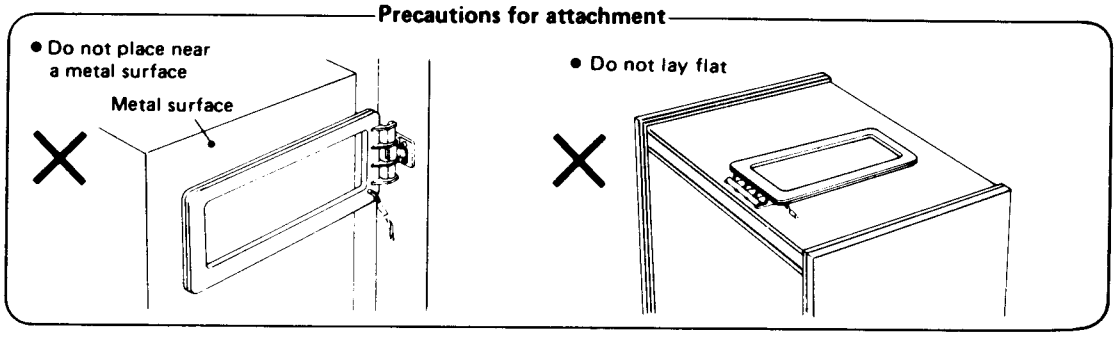


The power supply for this unit varies depending upon the areas.
Also, the parts used for power supply are different.
So, refer to the schematic diagram and the replacement parts list.

*220V (50/60 Hz) for Continental Europe.
*240V (50/60 Hz) for United Kingdom.

■ AM LOOP ANTENNA

When the AM loop antenna is connected to the rear panel, place it as far away from the set as possible to improve the sensitivity.



ORDER NO. SD83072589C2-A

FM/MW/LW Stereo Tuner ST-Z35L/ST-Z35L(K)

- This booklet contains the specifications and adjusting procedures for ST-Z35L, written in Germany, French and Spanish.
- File this manual together with the ST-Z35L service manual (Order No. SD83072589C2).

- Das vorliegende Büchlein enthält die Spezifikationen und Justierverfahren für ST-Z35L in deutscher, französischer und spanischer Sprache.
- Bewahren Sie das Büchlein zusammen mit der Bedienungsanleitung für ST-Z35L (Bestell-Nr. SD83072589C2).

- Cette brochure contient les spécifications et les procédures de mises au point pour le ST-Z35L, écrites en allemand, en français et en espagnol.
- Classer ce manuel en même temps qu'avec le manuel de service du ST-Z35L (N° d'ordre: SD83072589C2).

- Este librito contiene la especificationes y procedimientos de ajuste para ST-Z35L, escritos en alemán, francés y español.
- Guarder este manual juntamente con el manual de servicio de ST-Z35L (Pedido N°. SD83072589C2).

■ TECHNISCHE DATEN

(Spezifikationen Können infolge von Verbesserungen ohne Ankündigung geändert werden.)

(DIN 45 500)

■ UKW-TUNERTEIL

Wellenbereich	88 ~ 108 MHz
Eingangsempfindlichkeit	0,95 μV (nutzbar nach IHF)
S/R 30 dB	1,0 μV (75 Ω)
S/R 26 dB	0,9 μV (75 Ω)
S/R 20 dB	0,8 μV (75 Ω)
Stereoumschaltschwelle bei 46 dB nach IHF	22 μV/75 Ω
Gesamtklirrfaktor	
Mono	0,15%
Stereo	0,3%
Geräuschabstand	
Mono	70 dB (78 dB nach IHF)
Stereo	65 dB (70 dB nach IHF)
Frequenzgang	20 Hz ~ 15 kHz (+0,5 dB ~ −1,5 dB)
Trennschärfe bei Störsender (±400 kHz)	65 dB
Einfangverhältnis	1,0 dB
Spiegelfrequenz-Dämpfung bei 98 MHz	40 dB
ZF-Dämpfung bei 98 MHz	70 dB
Ansprechdämpfung auf Nebenfrequenzen bei 98 MHz	70 dB
MW-Unterdrückung	50 dB
Übersprechdämpfung	
1 kHz	40 dB
10 kHz	30 dB
Trägerrest	
19 kHz	−30 dB (−35 dB nach IHF)
38 kHz	−45 dB (−50 dB nach IHF)
Kanalabweichung (250 Hz ~ 6300 Hz)	±1,5 dB
Begrenzereinsatz	1,2 μV
Bandbreite	
ZF-Verstärker	180 kHz
UKW-Demodulator	1000 kHz
Antennenanschluß	75 Ω (unsymmetrisch)

■ MW/LW-TUNERTEIL

Wellenbereiche	
MW	525 ~ 1605 kHz
LW	145 ~ 350 kHz
Eingangsempfindlichkeit (S/R 20 dB)	
MW	20 μV, 300 μV/m
LW	50 μV
Trennschärfe (±10 kHz)	
MW	27 dB
LW	35 dB
Spiegelfrequenz-Dämpfung	
MW	40 dB (1000 kHz)
LW	40 dB (250 kHz)
ZF-Dämpfung	
MW	65 dB (1000 kHz)
LW	40 dB (250 kHz)

■ ALLGEMEINE DATEN

Ausgangsspannung	0,3 V (0,6V IHF)
Leistungsaufnahme	6W
Netzspannung	
Für Kontinentaleuropa	Wechselstrom 50 Hz/60 Hz, 220V
Für andere Länder	Wechselstrom 50 Hz/60 Hz, 110V/120V/220V/240V
Abmessungen (B×H×T)	430 × 53 × 220 mm
Gewicht	2,2 kg

■ MESSUNGEN UND JUSTIERUNGEN

- Beim Abgleichen der hohen Frequenz ist zuerst die Spule abzugleichen (Abgleich der niedrigen Frequenz), und dann allmählich der lose Trimmer anzuziehen, um den Abgleich der hohen Frequenz vorzunehmen. Für den Abgleich der Oszillationsspule und des ZFT ist ein nichtmetallischer Schraubenzieher zu verwenden.
- Den Anzeiger vor dem Abgleich unbedingt auf den Startpunkt einstellen. (Siehe Abb. 6)

- **Stellungen und zu benutzende Geräte**

1. Elektronische Voltmeter für Wechsel-und Gleichstrom (VTVM).
2. AM (MW)-Meßsender (AM-SG)
3. UKW-Meßsender (FM-SG)
4. Oszilloskop
5. Signalfrequenzmesser (meßbar für 19kHz und 108MHz).
6. Bereichsschalter ..... AM (MW/LW Abgleich)
   FM (UKW Abgleich)
7. FM Muting/Mode Schalter..... off/FM mono.
8. Die Netzspannung auf ihren Sollwert einstellen.
9. Der Ausgang des Meßsenders darf nicht höher sein als unbedingt notwendig für eine gute ablesung.

*** Vorbereitung des UKW-Meßoszillators (UKW-MO)**

1. Die Normal-Eingangs eistung dieses Gerätes beträgt 60 dB (1 mV), 400 Hz, 100% Modulation. (Wegen der Dämpfung bei Verwendung von Koaxialkabeln, muß die MO-Ausgangsleistung 6 dB oder mehr (IHF) betragen; d. h. wenn die Eingangsleistung 60 dB beträgt, muß der MO-Ausgang 66 dB betragen.)

Nr.	AM/UKW MESSENDER ANSCHLUSS	AM/UKW MESSENDER FREQUENZ	SKALENZEIGEREINSTELLUNG DES TUNER	ANZEIGEGEIRÄT (Röhrenvoltmeter order Oszillograph)	ABGLEICHSPUNKTE	BEMERKUNGEN
	AM (MW/LW)-ZF-ABGLEICH					
1	AM-MO über 200 pF-Kondensator an den AM-Antennenanschluß anschließen, wie in Abb. 7 gezeigt. (Starker Eingang.)	450kHz (400 Hz Modulat., 30%)	Kein Empfang	Wechselstrom Röhrenvoltmeter oder Oszillograph über den Ausgang "OUTPUT" schließen.	T201 (AM . IFT)	Die Eingangsfrequenz und die Einstellungspunkte so adustieren, daß der Ausgang den maximalen Wert erreicht.
	MW-HF-ABGLEICH * Bandwahlschalter in die "MW"-position stellen.					
2	AM-MO über 200 pF-Kondensator an den AM-Antennenanschluß anschließen, wie in Abb. 7 gezeigt. (Schwacher Eingang.)	600kHz (400 Hz Modulat., 30%)	600kHz	Wechselstrom Röhrenvoltmeter oder Oszillograph über den Ausgang "OUTPUT" schließen.	L202 (MW OSC. Spule) L203 (MW ANT. Spule)	• Auf max. Ausgang abgleichen.
3		1500kHz (400 Hz Modulat., 30%)	1500kHz	Wechselstrom Röhrenvoltmeter oder Oszillograph über den Ausgang "OUTPUT" schließen.	CT201 (MW OSC. Trimmer) CT202 (MW ANT. Trimmer)	• Auf max. Ausgang abgleichen. • Schritt (2) und (3) sind zu wiederholen.
	LW-HF-ABGLEICH * Bandwahlschalter in die "LW"-position stellen.					
4	AM-MO über 200 pF-Kondensator an den AM-Antennenanschluß anschließen, wie in Abb. 7 gezeigt. (Schwacher Eingang.)	145 kHz (400 Hz Modulat., 30%)	145 kHz	Wechselstrom Röhrenvoltmeter oder Oszillograph über den Ausgang "OUTPUT" schließen.	L251 (LW OSC. Spule) L252 (LW ANT. Spule)	• Auf max. Ausgang abgleichen.
5		350 kHz (400 Hz Modulat., 30%)	350 kHz	Wechselstrom Röhrenvoltmeter oder Oszillograph über den Ausgang "OUTPUT" schließen.	CT251 (LW OSC. Trimmer) CT252 (LW ANT. Trimmer)	• Auf max. Ausgang abgleichen. • Schritt (4) und (5) sind zu wiederholen.
	UKW-ZF-ABGLEICH					
6	———	Kein Signal	Kein Empfang	Ein Gleichstromröhrenvoltmeter zwischen TP101 (+) und TP102 (—) über eine Drosselspule verbinden (siehe Abb. 8)	T101 (Diskriminator IFT)	• FM muting/FM mode. Schalter, auf "on/FM auto" stellen. • Den Kern von T101 so justieren, daß die gemessene Spannung im signallosen Modus 0mV im 300mV Bereich beträgt.
	UKW-HF-ABGLEICH					
7	Verbinden FM-SG zu FM Antennende (Schwacher Input).	87,5MHz (400 Hz Modulat., 100%) Schwacher Eingang)	87,5MHz (Frequenz-min.)	Oszillograph über den Ausgang "OUTPUT" schließen.	L4 (OSC. Spule)	• Einen schwachen Eingang geben, bei dem Geräusch in der Ausgangswellenform enthalten wird. • So einstellen, daß die Ausgangswellenform vertikal symmertrisch wird. (Abb. 9) • Dei Einstellung von (7), (8) und (9) wieder bolen, bis die Frequenz mit der Skala übereinstimmt.
8		90MHz (400 Hz Modulat., 100%) Schwacher Eingang	90MHz	Oszillograph über den Ausgang "OUTPUT" schließen.	L2 (RF Det. Spule)	
9		106MHz (400 Hz Modulat., 100%) Schwacher Eingang)	106MHz	Oszillograph über den Ausgang "OUTPUT" schließen.	CT1 (OSC. Trimmer)	
	UKW-STEREO-DEKODER-ABGLEICH					
10	UNTER VERWENDUNG EINES ZÄHLERS 1. Unmoduliers Mono-Signal 100MHz in das Gerät speisen. (Vgl. Abb. 10) 2. FM muting/mode-Schalter auf "on/FM auto" stellen. 3. Zähler über einen Widerstand 100k ohm an TP301 schließen. 4. **VR301** auf 19kHz ± 30 Hz einstellen.			ALTERNATIV-MEß METHODE 1. Stereosignal entweder von einem Stereogenerator. oder einem Sender einspeisen. 2. **VR301** so einstellen, bis die Stereolampe auf leuchtet. Schleifer von **VR301** sichern, wie in Abb. 11 gezeigt.		

FRANÇAIS

■ CARACTERISTIQUES (Sujet á changement sans prearis.)

(DIN 45 500)

■ SECTION SYNTONISATEUR FM

Gamme de fréquence	88~108 MHz
Sensibilité	0,95 μV (IHF utilisable)
S/B 30 dB	1,0 μV (75Ω)
S/B 26 dB	0,9 μV (75Ω)
S/B 20 dB	0,8 μV (75Ω)
Sensibilité stéréo au seuil de 46 dB, IHF	22 μV/75Ω
Distorsion harmonique totale	
MONO	0,15%
STEREO	0,3%
Signal/Bruit	
MONO	70 dB (78 dB, IHF)
STEREO	65 dB (70 dB, IHF)
Réponse de fréquence	20 Hz~15 kHz, +0,5 dB~ −1,5 dB
Sélectivité alternée par canal (±400 kHz)	65 dB
Taux de capture	1,0 dB
Rejection d'image à 98 MHz	40 dB
Rejection FI à 98 MHz	70 dB
Rejection de réponse parasite à 98 MHz	70 dB
Suppression AM	50 dB
Séparation stéréophonique	
1 kHz	40 dB
10 kHz	30 dB
Fuite de porteuse	
19 kHz	−30 dB (−35 dB, IHF)
38 kHz	−45 dB (−50 dB, IHF)
Equilibrage de canaux (250 Hz~6,300 Hz)	±1,5 dB
Point de limite	1,2 μV
Largeur de bande	
Amplificateur FI	180 kHz
Démodulateur FM	1000 kHz
Bornes d'antenne	75Ω (asymétrique)

■ SECTION SYNTONISATEUR AM

Gamme de fréquence	
PO (MW)	525~1605 kHz
GO (LW)	145~350 kHz
Sensibilité (S/B 20 dB)	
PO (MW)	20 μV, 300 μV/m
GO (LW)	50 μV
Sélectivité (±10 kHz)	
PO (MW)	27 dB
GO (LW)	35 dB
Réjection d'image	
PO (MW)	40 dB (1000 kHz)
GO (LW)	40 dB (250 kHz)
Réjection FI	
PO (MW)	65 dB (1000 kHz)
GO (LW)	40 dB (250 kHz)

■ DIVERS

Tension de sortie	0,3 V (0,6V IHF)
Consommation	6W
Alimentation	
Pour l'Europe	CA 50 Hz/60 Hz, 220V
Autres	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (L×H×Pr)	430 × 53 × 220 mm
Poids	2,2 kg

■ MESURAGES ET RÉGLAGES

- Lorsque l'on régle la haute fréquence, régler tout d'abord la bobine (mise au point de la fréquence inférieure), puis graduellement resserrer le condensateur d'appoint desserré pour effectuer le réglage de la haute fréquence. Utiliser un tournevis non-métallique lorsque l'on régle la bobine oscillatrice et IFT (transformateur de fréquence intermédiaire).
- S'assurer que l'indicateur est réglé sur le point de départ avant d'effectuer la mise au point. (Voir Fig. 6)

- **Réglage et équipement utilisé**
1. Voltmètres électronique de courant alternatif et de courant continu (VTVM).
2. Générateur du signal AM (AM-SG).
3. Générateur du signal FM (FM-SG).
4. Oscilloscope
5. Compteur de fréquence (19kHz et 108MHz mesurable).
6. Sèlecteur de gamme. . . . . {AM (Alignement MW/LW) {FM (Alignement FM)
7. Commutateur de silencieux/mode. . . . off/FM mono.
8. Conserver la tension du secteur à la tension nominale.
9. Le signal du générateur ne doit pas être plus élevé qu'il n'est nécessaire à obtenir une lecture en sortie.

*** Préparatif du générateur de signaux à Modulation de Fréquence (FM-SG)**

1. L'entrée normale de l'appareil est de 60 dB (1 mV), 400 Hz, modulation de 100%, (Du fait de l'atténuation, utiliser des câbles coaxiaus. La sortie du générateur de signaux devra être de plus de 60 dB (IHF). C'est-à-dire que lorsque l'entrée est de 60 dB, la sortie du générateur de signaux devra être de 66 dB.)

No	GENERATEUR AM		AIGUILLE SUR LE CADRAN	INDICATEUR (VOLT-METRE ELECTRONIQUE OSCILLOSCOPE)	POINTS DE REGLAGE	OBSERVATIONS
	BRANCHEMENT	FREQUENCE				
	RÉGLAGE DE FI-AM					
1	Raccorder le générateur de signaux AM (modulation d'amplitude) à la borne d'antenne AM par l'intermédiaire d'un condensateur de 200 pF, en se référant à la Fig. 7. (Entrée sous pulsante)	450kHz (modulé à 30% par 400 Hz)	Point sans signal	C.A. voltmètre électronique ou oscilloscope sur prise de sortie de l'appareil.	T201 (AM transfo FI)	• Régler la fréquence d'entrée et les points de réglage de tells sorte que la sortie devienne maximale.

No	GENERATEUR AM/FM		AIGUILLE SUR LE CADRAN	INDICATEUR (VOLT-METRE ELECTRONIQUE OSCILLOSCOPE)	POINTS DE REGLAGE	OBSERVATIONS
	BRANCHEMENT	FREQUENCE				
	RÉGLAGE DE RF-MW (PO) * Régler le commutateur de gammes d'ondes sur la position "MW".					
2	Raccorder le générateur de signaux AM (modulation d'amplitude) à la borne d'antenne AM par l'intermédiaire d'un condensateur de 200 pF, en se référant à la Fig. 7. (Entrée faible)	600kHz (modulé à 30% par 400 Hz)	600kHz	C.A. voltmètre électronique ou oscilloscope sur prise de sortie de l'appareil.	L202 (Bobine OSC MW) L203 (Bobine ANT MW)	• Réglez au maximum de signal de sortie.
3		1500kHz (modulé à 30% par 400 Hz)	1500kHz	C.A. voltmètre électronique ou oscilloscope sur prise de sortie de l'appareil.	CT201 (Trimmer OSC MW) CT202 (Trimmer ANT MW)	• Réglez au maximum de signal de sortie. • Recommencez les étapes (2) et (3).
	RÉGLAGE DE RF-LW (GO) * Régler le commutateur de gammes d'ondes sur la position "LW".					
4	Raccorder le générateur de signaux AM (modulation d'amplitude) à la borne d'antenne AM par l'intermédiaire d'un condensateur de 200 pF, en se référant à la Fig. 7. (Entrée faible)	145 kHz (modulé à 30% par 400 Hz)	145 kHz	C.A. voltmètre électronique ou oscilloscope sur prise de sortie de l'appareil.	L251 (Bobine OSC LW) L252 (Bobine ANT LW)	• Réglez au maximum de signal de sortie.
5		350 kHz (modulé à 30% par 400 Hz)	350 kHz	C.A. voltmètre électronique ou oscilloscope sur prise de sortie de l'appareil.	CT251 (Trimmer OSC LW) CT252 (Trimmer ANT LW)	• Réglez au maximum de signal de sortie. • Recommencez les étapes (4) et (5).
	RÉGLAGE DE FI-FM					
6	———	Sans signal	Point sans signal	Brancher le voltmétre électronique à C.C. aux bornes TP101 (+) TP102 (−). (Voir la fig. 8)	T101 (Transfo FI discri.)	• Commutateur de silencieux sur "on/FM auto". • Régler le noyau T101 de telle sorte que le voltage mesuré dans le mode sans signal, soti de 0mV dans la gamme des 300mV.
	RÉGLAGE DE RF-FM					
7	Raccorder le Générateur de Fréquences FM à la Borne Dantenne (Entrée Faible).	90 MHz (modulé à 100% par 400 Hz) Entrée faible	90 MHz	Oscilloscope sur prise de sorite du tuner.	L4 (bobine OSC) L2 (bobine DET RF)	• Appliquer une entrée faible de telle sorte que le parasite soit compris dans la forme de l'onde de sortie. • Faire le réglage de telle sorte que la forme de l'onde de sortie soit verticalement symétrique. (Voir fig. 9) • Refaire les réglages (7) et (8) jusqu'à ce que la fréquence corresponde correctement avec l'échells du cadran.
8		106 MHz (modulé à 100% par 400 Hz) Entrée faible	106 MHz	Oscilloscope sur prise de sortie du tuner.	CT1 (trimmer OSC)	

RÉGLAGE PILOTE MULTIPLEX FM	
AVEC UN ERÉQUENCEMÉNTRE	PAR UN OUTRE SYSTÈME
9 1. Signal mono 100MHz non modulé appliqué à l'appareil. (Voir Fig. 10) 2. Commutateur de silencieux sur "on/FM auto". 3. Branchez le fréquencemètre sur TP301 à travers une 4. Régler **VR301** sur 19kHz ± 30 Hz.	1. Appliquez à l'appareil un signal stéréo provenant d'un générateur ou de la réception d'un émetteur. 2. Régler **VR301** jusqu à ce que l'indicateur de stéréophonic s'allume. Collez le curseur le **VR301** comme indiqué sur la fig. 11.

ESPAÑOL

■ ESPECIFICACIONES

Estas especificaciones están sujetas a cualquier cambio sin previo eviso.

(DIN 45 500)

■ SECCION PARA SINTONIZADOR FM

Gama de frecuencias	88~108 MHz
Sensibilidad	0,95 μV (IHF, utilizable)
Señal a ruido 30 dB	1,0 μV (75Ω)
Señal a ruido 26 dB	0,9 μV (75Ω)
Señal a ruido 20 dB	0,8 μV (75Ω)
Sensibilidad de acallamiento estéreo de 46 dB IHF	22 μV/75Ω
Distorsión armónica total	
MONO. (MONO)	0,15%
ESTEREO (STEREO)	0,3%
Relación de señal a ruido	
MONO. (MONO)	70 dB (78 dB, IHF)
ESTEREO (STEREO)	65 dB (70 dB, IHF)
Respuesta de frecuencia	20 Hz~15 kHz, +0,5 dB~ −1,5 dB
Selectividad alternada de canal (±400 kHz)	65 dB
Relación de captura	1,0 dB
Rechazo de imagen a 98 MHz	40 dB
Rechazo de F.I. a 98 MHz	70 dB
Rechazo de respuesta espuria a 98 MHz	70 dB
Supresión AM	50 dB
Separación estereofónica	
1 kHz	40 dB
10 kHz	30 dB
Fuga de onda portadora	
19 kHz	−30 dB (−35 dB, IHF)
38 kHz	−45 dB (−50 dB, IHF)
Equilibrio de canales 250 Hz~6 300 Hz	±1,5 dB
Punto de límite	1,2 μV
Ancho de banda	
Amplificador FI	180 kHz
Demodulador FM	1000 kHz
Bornes de antena	75Ω (no equilibrado)

■ SECCION PARA SINTONIZADOR AM

Gama de frecuencias	
OM (MW)	525~1605 kHz
OL (LW)	145~350 kHz
Sensibilidad (Relación de señal a ruido de 20 dB)	
OM (MW)	20 μV, 300 μV/m
OL (LW)	50 μV
Selectividad (±10 kHz)	
OM (MW)	27 dB
OL (LW)	35 dB
Rechazo de imagen	
OM (MW)	40 dB (1000 kHz)
OL (LW)	40 dB (250 kHz)
Rechazo de F.I.	
OM (MW)	65 dB (1000 kHz)
OL (LW)	40 dB (250 kHz)

■ GENERAL

Voltaje de salida	0,3V (0,6V IHF)
Consumo de energía	6W
Alimentación de energía	
Para Europa continental	CA 50 Hz/60 Hz, 220V
Para otros paises	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensiones (An.×Al.×Prof.)	430 × 53 × 220 mm
Peso	2,2 kg

■ MEDICIONES Y AJUSTE

- Al ajustar la alta frecuencia, primero ajustar la bobina (ajuste de frecuencia inferior) y entonces, gradualmente, apretar el trimer flojo para efectuar el ajuste de alta frecuencia. Utilizar un destornillador no metálico al ajustar la bobina de oscilación y IFT (transformador de frecuencia intermedia).
- Asegurarse de que el indicador está puesto en el punto de arranque antes del ajuste. (Véase la Fig. 6)

• Puesta y Uso de equipo

1. Voltimetros electónicos de CA y CC (VTVM).
2. Generador de señales AM (AM-SG).
3. Generador de señales FM (FM. SG).
4. Osciloscopio.
5. Frecuencimetro (19kHz y 108MHz medibles).
6. Selector de bande . . . . . {AM (Ajuste de MW/LW) / FM (Ajuste de FM)
7. Interruptor silenciador/modalidad FM . . . . . off/mono.
8. Mantener voltaje de línea a voltaje nominal.
9. La salida de generador de señales no debe ser mayor que la necesaria para obtener una lectura de salida.

*** Preparación de generador de señales de FM (FM-SG)**

La entrada standard del aparato es de 60 dB (1 mV), modulación 100%, 400 Hz (Debido a atenuación, usando cables coaxiales.
La salida de GS ha de ser de 6 dB más (IHF). Eso es cuando 60 dB de entrada, la salida de GS ha de ser de 66 dB.

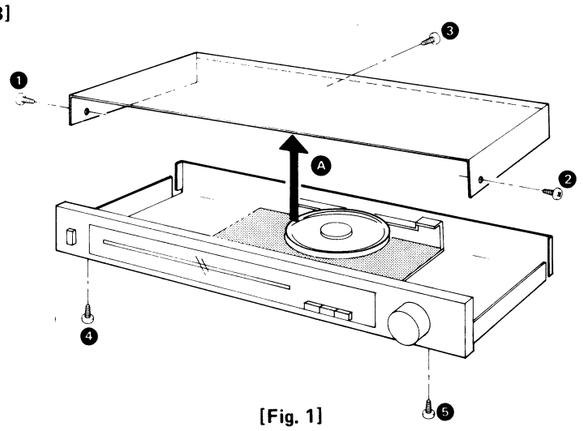
No.	GENERADOR DE SEÑALES AM/FM CONEXION	GENERADOR DE SEÑALES AM/FM FRECUENCIA	PUESTA DE CUADRANTE	PREPARACIONES	PIEZAS AJUSTADAS	PROCEDIMIENTO DE AJUSTE
	AJUSTE IF-MW (OM)-LW (OL)					
1	Conectar SG-AM a terminal de antena AM a través de capacitor de 200 pF, refiriendo a la Fig. 7. (Entrada potente.)	450kHz (Mod. 30% con 400Hz)	Punto de-no interfe-rencia.	Conecart VTVM de CA u osciloscopio a terminales "OUTPUT" del aparato.	T201 (IFT AM)	• Ajuste la frecuencia de entrada y el punto de ajuste de manera que la salida se convierta en máxima.
	AJUSTE RF-MW (OM) * Selector de band "MW"					
2	Conectar SG-AM a terminal de antena AM a través de capacitor de 200 pF, refiriendo a la Fig. 7. (Entrada débil.)	600kHz (Mod. 30% con 400Hz)	600kHz	Conectar VTVM de CA u osciloscopio a terminales "OUTPUT" del aparato.	L202 (Bobine OSC MW) L203 (Bobina ANT MW)	• Ajustar para salida máxima.
3		1500kHz (Mod 30% con 400Hz)	1500kHz	Conectar VTVM de CA u osciloscopio a terminales "OUTPUT" del aparato.	CT201 (Trimer de OSC MW) CT202 (Trimer de ANTMW)	• Ajustar para salida máxima. • Repetir pasos (2) y (3).
	AJUSTE RF-LW (OL) * Selector de band "LW"					
4	Conectar SG-AM a terminal de antena AM a través de capacitor de 200 pF, refiriendo a la Fig. 7. (Entrada débil.)	145 kHz (Mod. 30% con 400 Hz)	145 kHz	Conectar VTVM de CA u osciloscopio a terminales de "OUTPUT".	L251 (Bobina OSC LW) L252 (Bobina ANT LW)	• Ajustar para salida máxima.
5		350 kHz (Mod. 30% con 400 Hz)	350 kHz	Conectar VTVM de CA u osciloscopio a terminales de "OUTPUT".	CT251 (Trimer de OSC LW) CT252 (Trimer de ANT LW)	• Ajustar para salida máxima. • Repetir pasos (4) y (5).
	AJUSTE IF-FM					
6	———	No señal.	Punto de no interfe-rencia.	Conectar VTVM CC entre terminal TP101 (+) y TP102 (−)a través de bobina de choque. (Véase la Fig. 8).	T101 (Discri. IFT)	• Ajustar núcleo de T101 de manera que voltaje medido en modalidad de señal se 0mV en gama de 300mV.
	AJUSTE RF-FM					
7	Conectar FM-SG a terminal de antena FM (entrada dé bil)	90MHz (Mod. 100% con 400Hz) Entrada débil.	90MHz	Conectar osciloscopio a terminals "OUTPUT" del aparato.	L4 (Bobina OSC) L2 (Bobina DET RF)	• Añadir entrada débil de manera que ruido se incluya en la forma de onda de salida. • Hacer el ajuste de manera que la forma de onda de salida sea verticalmente simétrica. (Fig. 9). • Repetir los pasos (7) y (8) hasta que la frecuencia se adapte correctamente a la escala del cuadrante.
8		106MHz (Mod. 100% con 400Hz) Entrada débil.	106MHz	Conectar osciloscopio a terminals "OUTPUT" del aparato.	CT1 (Trimer OSC)	
	AJUSTE DE V.C.O MPX de FM					
	USANDO UN FRECUENCIMETRO			USANDO SISTEMA ALTERNATIVO		
9	1. Señal mono no modulada de 100MHz 60 dB aplicada (Véase la Fig. 10) al aparato. 2. Interruptor de modalidad/sinlenciador FM a "on/auto FM". 3. Conectar frecuéncimetro a TP301 a través de resistor (100kΩ). 4. Ajustar **VR301** a 19kHz ± 30Hz.			1. Aplicar señal estereofónica de generador o estación estereofónica a sintonfizador. 2. Ajustar **VR301** hasta que indicador estereofónico se ilumina. Brazo de cemento de **VR301** como se muestra en la Fig. 11.		

Printed in Japan
830702400 Ⓗ YK

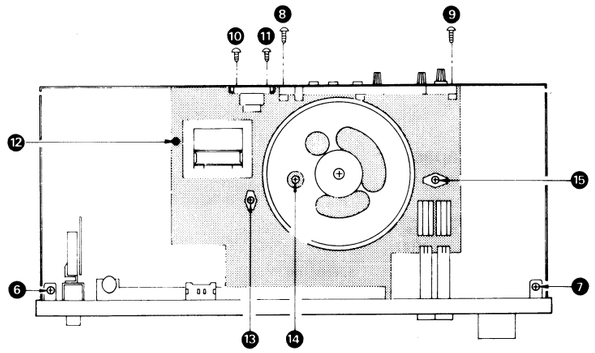
■ DISASSEMBLY INSTRUCTIONS

- **How to remove the printed circuit board [Fig. 1,2,3]**

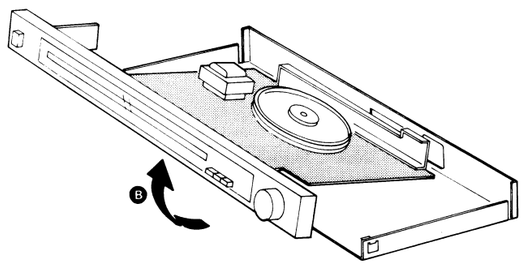
1. Remove the 2 setscrews (Fig. 1 : ❶,❷) on the side and 1 setscrew (Fig. 1 : ❸) on the back of the cabinet.
2. Move the cabinet in the direction of the arrow Ⓐ in Fig. 1.
3. Remove the 4 setscrews (Fig. 1 : ❹, ❺ and Fig. 2 : ❻, ❼) of front panel, 2 setscrews of terminal board (Fig. 2 : ❽, ❾), 2 setscrews (Fig. 2 : ❿, ⓫) of AC socket, and 4 setscrews (Fig. 2 : ⓬ ~ ⓯) of printed circuit board.
4. Slightly pull the front panel toward you and remove the printed circuit board in the direction of the arrow Ⓑ in Fig. 3.



[Fig. 1]



[Fig. 2]

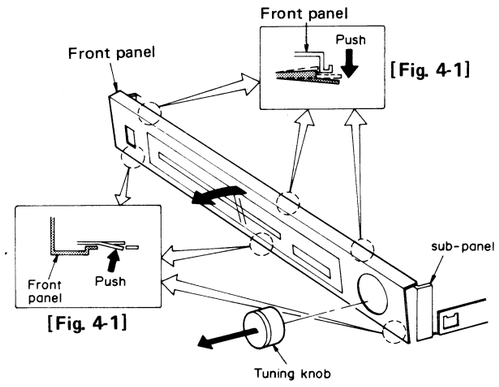


Raise the Front panel and printed circuit board

[Fig. 3]

- **How to remove the front panel [Fig. 4]**

1. Remove the cabinet.
2. Pull out the tuning knob.
3. The claws projected (at 6 locations) from the sub-panel are engaged with the front panel.
   Disengage the claws with a screwdriver or the like to remove the front panel. (See Fig. 4-1)



[Fig. 4-1]

[Fig. 4]

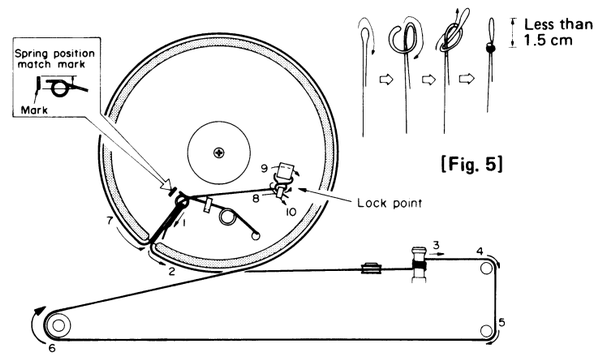
■ DIAL CORD INSTALLATION GUIDE

- **When setting the cord, follow the procedure given below**

1. The cord should be at least 150 cm long.
2. Completely turn the tuning gang (variable capacitor) counterclockwise. (Variable condenser capacity: max. Frequency: min.).
3. Make a knot at the cord and as shown in Fig. 5.
4. Set the spring to the knot, and set the cord in the order of 1 ~ 10.

Note: At step 7, pull the cord strongly, slacken the spring up to the mark of the durm, the go to step 8 ~ 10 to set the cord.

5. Fix the cord terminal with adhesive.
6. Cut off the cord about 5 mm at its either end.



[Fig. 5]

■ MEASUREMENTS AND ADJUSTMENTS

* When adjusting the high frequency, first adjust the coil (lower frequency adjustment) and then gradually tighten the loose trimmer to make the high frequency adjustment. Use a non-metallic screwdriver when adjusting the OSC coil and IFT.
* Make sure that the indicator is set at the start point before the adjustment. (See Fig. 6)

*** Setting and Equipment used**

1. AC and DC electronic voltmeters (VTVM)
2. AM signal generator (AM-SG)
3. FM signal generator (FM-SG)
4. Oscilloscope
5. Frequency counter (19 kHz and 108 MHz measurable).
6. Band selector switch . . . . . AM (MW/LW adjustment) FM (FM adjustment)
7. FM muting mode switch . . . . . off/FM mono
8. Maintain line voltage at rated voltage.
9. Output of signal generator should be no higher than necessary to obtain an output reading.

*** Preparation of FM signal generator (FM-SG)**

1. The standard input of the set is 60 dB (1 mV), 400 Hz, 100% modulation (Because of attenuation, using coaxial cables. SG output must be 6 dB plus (IHF). That is when input 60 dB, SG output to be 66 dB.)

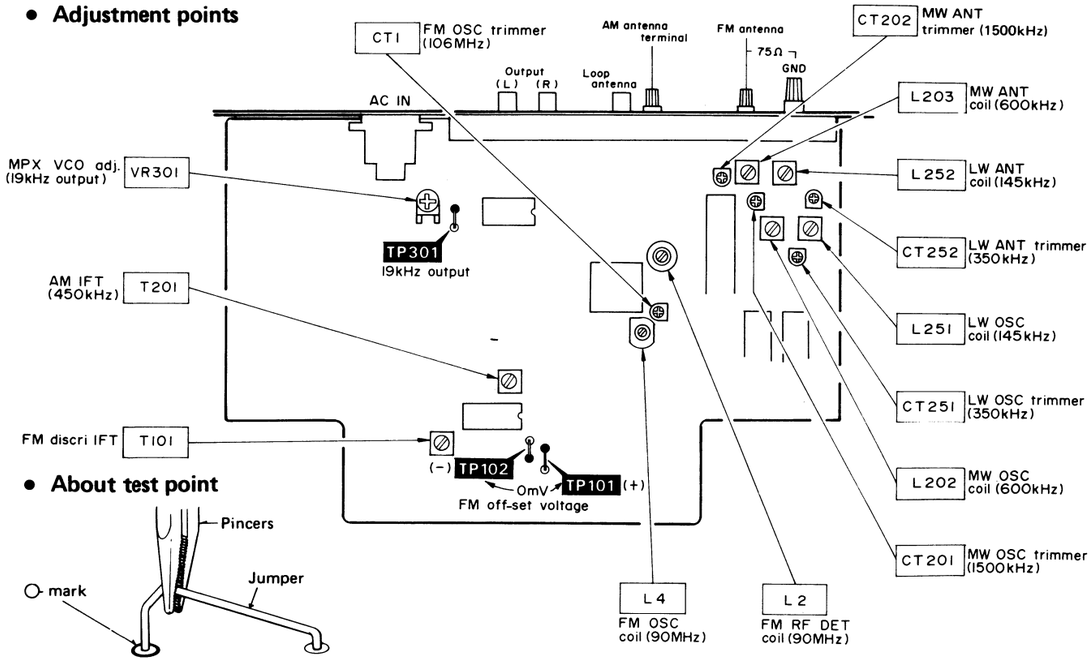
Step No.	AM GENERATOR CONNECTION	AM GENERATOR FREQUENCY	DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUSTMENT POINTS	REMARKS
	AM-IF ADJUSTMENT					
1	Connect AM-SG to AM antenna terminal through 200pF capacitor referring to Fig. 7. (Powerful input)	450 kHz (30% Mod. with 400 Hz)	Point of non-interference	Connect AC VTVM or scope to "OUTPUT" terminals.	T201 (AM IFT)	• Adjust the input frequency and adjustment points so that the output becomes maximum.
	MW-RF ADJUSTMENT *Set band selector to "MW" position.					
2	Connect AM-SG to AM antenna terminal through 200pF capacitor referring to Fig. 7. (Weak input)	600 kHz (30% Mod. with 400 Hz)	600 kHz	Connect AC VTVM or scope to "OUTPUT" terminals.	L202 (MW OSC Coil) L203 (MW ANT Coil)	• Adjust for maximum output.
3		1500 kHz (30% Mod. with 400 Hz)	1500 kHz	Connect AC VTVM or scope to "OUTPUT" terminals	CT201 (MW OSC Trimmer) CT202 (MW ANT Trimmer)	• Adjust for maximum output. • Repeat steps (2) and (3).
	LW-RF ADJUSTMENT *Set band selector to "LW" position.					
4	Connect AM-SG to AM antenna terminal through 200pF capacitor referring to Fig. 7. (Weak input)	145 kHz (30% Mod. with 400 Hz)	145 kHz	Connect AC VTVM or scope to "OUTPUT" terminals.	L251 (LW OSC Coil) L252 (LW ANT Coil)	• Adjust for maximum output.
5		350 kHz (30% Mod. with 400 Hz)	350 kHz	Connect AC VTVM or scope to "OUTPUT" terminals.	CT251 (LW OSC Trimmer) CT252 (LW ANT Trimmer)	• Adjust for maximum output. • Repeat steps (4) and (5).

	FM GENERATOR		DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUSTMENT POINTS	REMARKS
	CONNECTION	FREQUENCY				
	FM-IF ADJUSTMENT					
6	———	No-Signal	Point of non-interference	Connect DC VTVM between TP101 and TP102 through choke coil. (Refer to Fig. 8)	T101 (Discri. IFT)	* FM muting/mode switch to "on/FM auto" position. * Adjust T101 core so that voltage measured in signal mode is 0 mV in 300 mV range.
	FM-RF ADJUSTMENT					
7	Connect FM-SG to FM antenna terminal. (Weak input)	90 MHz (100% Mod. with 400 Hz)	90 MHz	Connect scope to "OUTPUT" terminal.	L4 (OSC Coil) L2 (RF DET. Coil)	* Add weak input so that noise is included in the output wave form. * Make the adjustment so that the output wave form is vertically symmetrical. (Fig. 9) * Repeat the steps (7) and (8) until the frequency correctly matches the dial scale.
8		106 MHz (100% Mod. with 400 Hz)	106 MHz	Connect scope to "OUTPUT" terminal.	CT1 (OSC Trimmer)	

FM MPX V.C.O. ADJUSTMENT

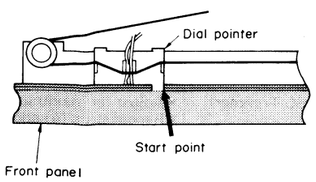
USING A FREQUENCY COUNTER	USING ALTERNATE SYSTEM
1. 100 MHz, 60 dB Non-modulated mono signal applied to set. (Refer to Fig. 10) 9 2. FM muting/mode switch to "on/FM auto" position. 3. Connect frequency counter to TP301 through resistor (100kΩ). 4. Adjust **VR301** to 19 kHz ± 30 Hz.	1. Apply stereo signal from generator or stereo station to tuner. 2. Adjust **VR301** until stereo indicator lights up. Cement arm of **VR301** as shown in Fig. 11.

- **Adjustment points**

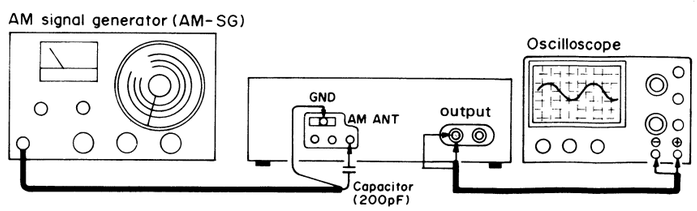


- **About test point**

It can be removed by pulling the ○- marked side by use of pincers. Insert it into the original hole when not needed.

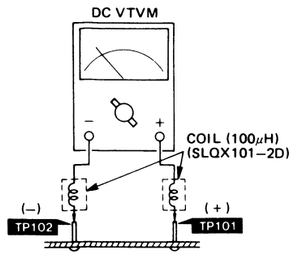


[Fig. 6]

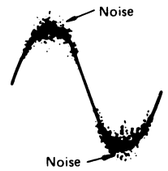


[Fig. 7]

AM (MW/LW) adjustment

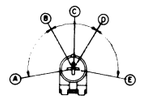


[Fig. 8]



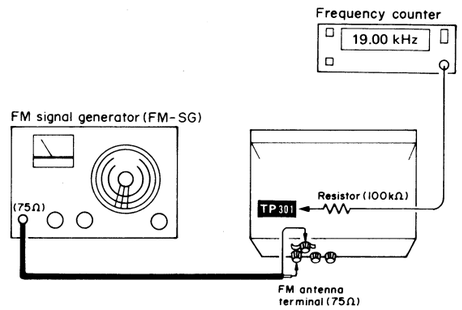
AF output wave form

[Fig. 9]



Ⓐ–Ⓑ Ⓓ–Ⓔ : Stereo OFF Position
Ⓑ–Ⓓ : Stereo ON Position (indictor lighting)
Ⓒ : Adjust Point of Pilot Circuit)

[Fig. 11]



[Fig. 10]

FM MPX V.C.O adjustment

■ RESISTORS AND CAPACITORS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The unit of resistance is OHM (Ω). K = 1000Ω, M = 1000KΩ
5. The unit of capacitance is MICROFARAD (μF). P = 10^{-6} μF
6. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

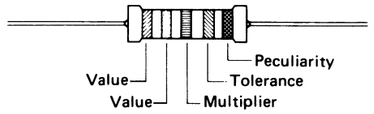
Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon	25 : 1/4W	J : ± 5%
ERG : Metal Oxide	1 : 1W	

★ ECB type capacitor



Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA : Electrolytic	1A : 10V	1H : 50V DC	C : ± 0.25pF
ECCD : Ceramic	1C : 16V		J : ± 5%
ECKD : Ceramic	1E : 25V		K : ± 10%
ECQM : Polyester	1V : 35V		N : ± 30%
ECQP : Polypropylene	1H : 50V		Z : +80%, −20%
ECBT : Axial Leaded Type Ceramic	50 : 50V		
	25 : 25V		

Ref. No.		Part No.	Value
RESISTORS			
R1	Ⓢ	ERD25FJ102	1K
R2	Ⓢ	ERD25FJ220	22
R3	Ⓢ	ERD25FJ221	220
R4	Ⓢ	ERD25TJ474	470K
R5	Ⓢ	ERD25FJ471	4.7K
R6	Ⓢ	ERD25TJ393	39K
R7	Ⓢ	ERD25FJ822	8.2K
R8	Ⓢ	ERD25FJ122	1.2K
R9	Ⓢ	ERD25FJ682	6.8K
R10	Ⓢ	ERD25TJ104	100K
R101	Ⓢ	ERD25FJ272	2.7K
R101	Ⓢ	ERD25FJ471	470
R102	Ⓢ	ERD25FJ681	680
R103	Ⓢ	ERD25TJ824	820K
R104	Ⓢ	ERD25TJ274	270K
R105,106	Ⓢ	ERD25FJ471	470
R107	Ⓢ	ERD25FJ152	1.5K
R108	Ⓢ	ERD25FJ103	10K
R110	Ⓢ	ERD25TJ684	680K
R111	Ⓢ	ERD25TJ683	68K
R201	Ⓢ	ERD25FJ122	1.2K
R202	Ⓢ	ERD25FJ681	680
R251	Ⓢ	ERD25TJ473	47K
R252	Ⓢ	ERD25FJ102	1K
R301	Ⓢ	ERD25FJ103	10K
R302	Ⓢ	ERD25TJ104	100K
R303,304	Ⓢ	ERD25TJ223	22K
R305	Ⓢ	ERD25TJ334	330K

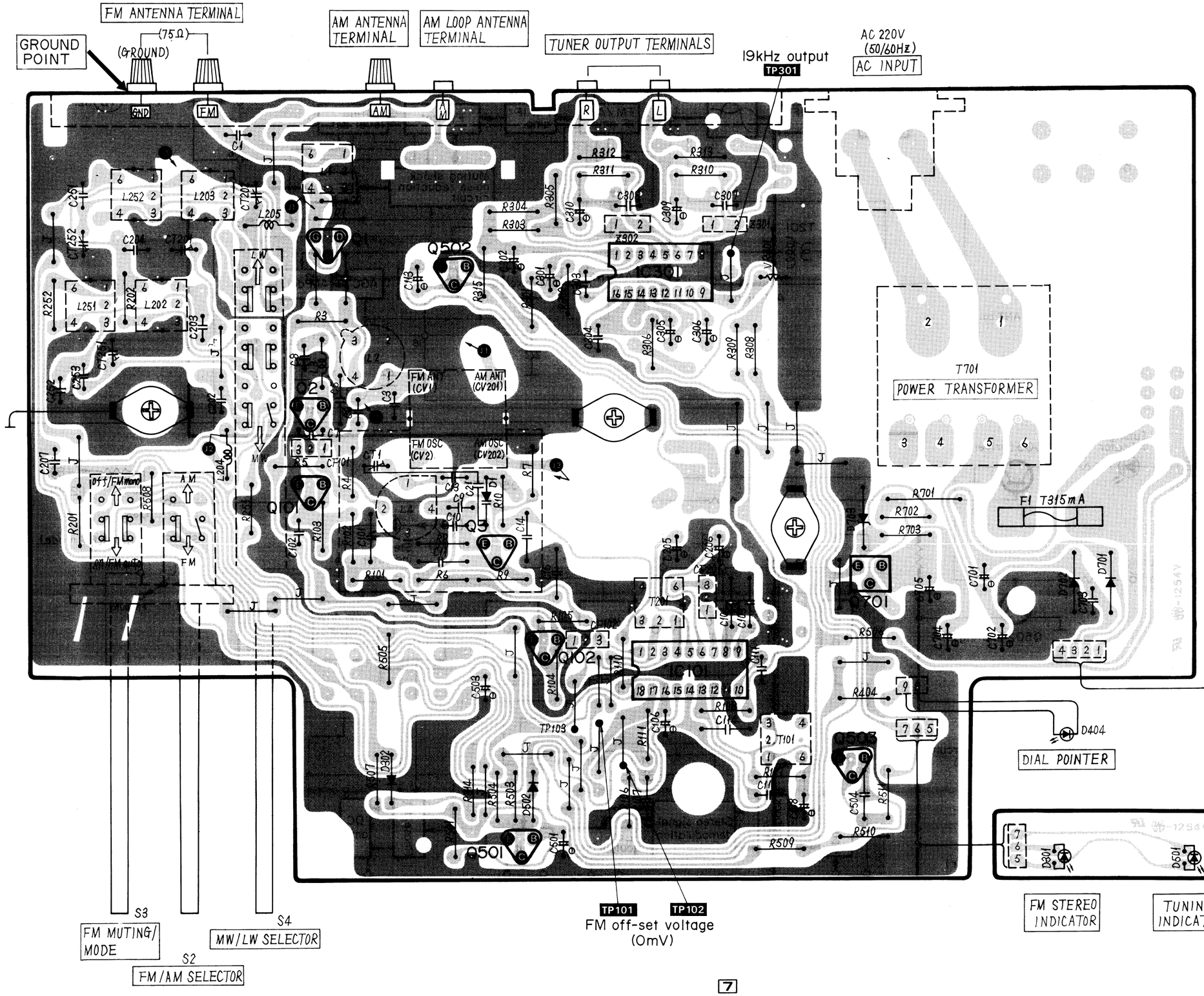
Ref. No.		Part No.	Value
RESISTORS			
R306	Ⓢ	ERD25TJ153	15K
R308	Ⓢ	ERD25FJ103	10K
R309	Ⓢ	ERD25FJ821	820
R310,311	Ⓢ	ERD25FJ222	2.2K
R312,313	Ⓢ	ERD25TJ333	33K
R314	Ⓢ	ERD25TJ473	47K
R315	Ⓢ	ERD25FJ330	33
R404	Ⓢ	ERD25FJ102	1K
R501	Ⓢ	ERD25FJ182	1.8K
R503	Ⓢ	ERD25FJ472	4.7K
R504	Ⓢ	ERD25FJ392	3.9K
R505	Ⓢ	ERD25FJ103	10K
R506	Ⓢ	ERD25TJ333	33K
R507,508	Ⓢ	ERD25TJ563	56K
R509	Ⓢ	ERD25FJ122	1.2K
R510	Ⓢ	ERD25FJ822	8.2K
R511	Ⓢ	ERD25FJ471	470
R701	Ⓢ	ERG1ANJ470	47
R702	Ⓢ	ERD25FJ122	1.2K
R703	Ⓢ	ERD25FJ561	560

Ref. No.		Part No.	Value
CAPACITORS			
C1(EK)	Ⓢ	ECCD1H180KC	18P
C1(EX) (EB) (EF)	Ⓢ	ECCD1H220KC	22P
C2	Ⓢ	ECCD1H180KC	18P
C3	Ⓢ	ECCD1H220KC	22P
C4		ECBT1H102ZXY	0.001
C5		ECBT1C103ZY	0.01
C6(EK)	Ⓢ	ECCD1H010CC	1P
C6(EX) (EB) (EF)	Ⓢ	ECCD1H030CC	3P
C7	Ⓢ	ECCD1H070CC	7P
C8	Ⓢ	ECCD1H181K	180P
C9	Ⓢ	ECCD1H390KC	39P
C10	Ⓢ	ECCD1H150KC	15P
C11		ECBT1H102ZXY	0.001
C13(EK)	Ⓢ	ECCD1H050CC	5P
C13(EX) (EB) (EF)	Ⓢ	ECCD1H080CC	8P
C14		ECBT1C103ZYY	0.01
C15		ECBT1C223NYY	0.022
C20	Ⓢ	ECCD1H030CC	3P
C21(EX) (EB) (EF)	Ⓢ	ECKD1H103ZF	0.01
C101		ECBT1C103ZYY	0.01
C102	Ⓢ	ECKD1H103ZF	0.01
C103,104	Ⓢ	ECKD1H223ZF	0.022
C106	Ⓢ	ECEA50Z1	1
C107		ECBT1C223NYY	0.022
C108	Ⓢ	ECEA1HS100	10

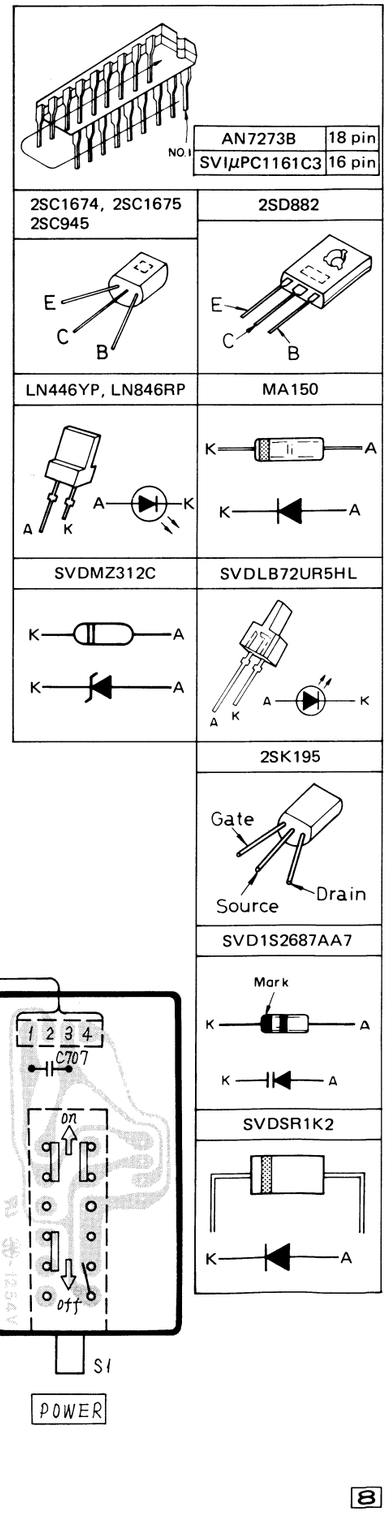
Ref. No.		Part No.	Value
CAPACITORS			
C110	Ⓢ	ECCD1H101K	100P
C111	Ⓢ	ECKD1H473ZF	0.047
C113	Ⓢ	ECEA25Z4R7	4.7
C114		ECBT1C103ZYY	0.01
C202	Ⓢ	ECCD1H120KC	12P
C203		ECQP1361JZ	360P
C204	Ⓢ	ECKD1H223ZF	0.022
C205	Ⓢ	ECEA1AS101	100
C206	Ⓢ	ECEA25Z4R7	4.7
C207	Ⓢ	ECCD1H270K	27P
C251	Ⓢ	ECCD1H070CC	7P
C252	Ⓢ	ECCD1H680K	68P
C253		ECQP1181JZ	180P
C301	Ⓢ	ECEA25Z4R7	4.7
C302	Ⓢ	ECEA1ES101	100
C303	Ⓢ	ECKD1H473ZF	0.047
C304		ECQP1471JZ	470P
C305,306	Ⓢ	ECEA50ZR47	0.47
C307,308	Ⓢ	ECQM1H223KV	0.022
C309,310	Ⓢ	ECEA50ZR47	0.47
C501	Ⓢ	ECEA1AS470	47
C503	Ⓢ	ECEA1HS100	10
C504		ECBT1C103ZYY	0.01
C701,702	Ⓢ	ECEA1CS221	220
C703	Ⓢ	ECKD1H103ZF	0.01
C704	Ⓢ	ECEA1VS221	220
C705	Ⓢ	ECEA1CS221	220
C707	Ⓢ	ECKD1H103ZF	0.01

■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

Ground (Earth) lines

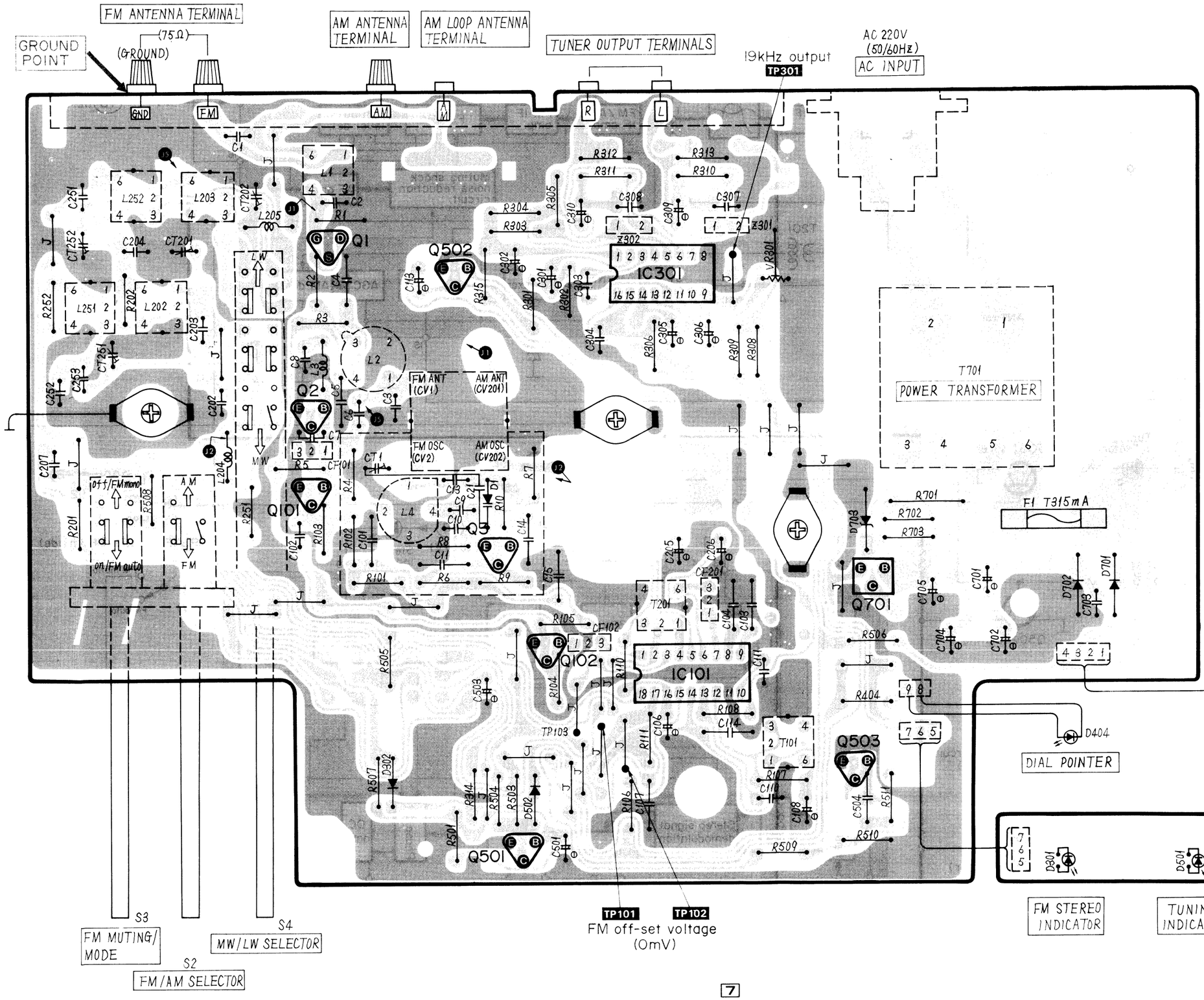


- **Terminal guide of transistors, IC's and diodes**

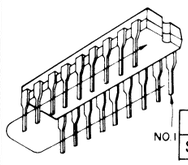


■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

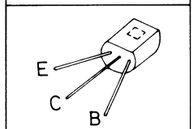
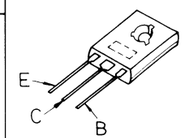
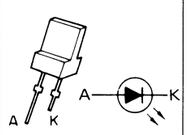
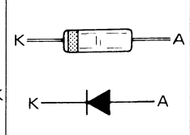
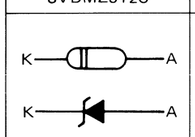
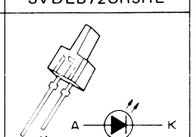
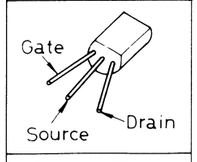
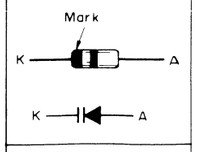
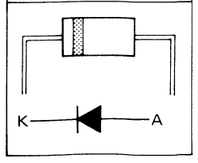
Ground (Earth) lines



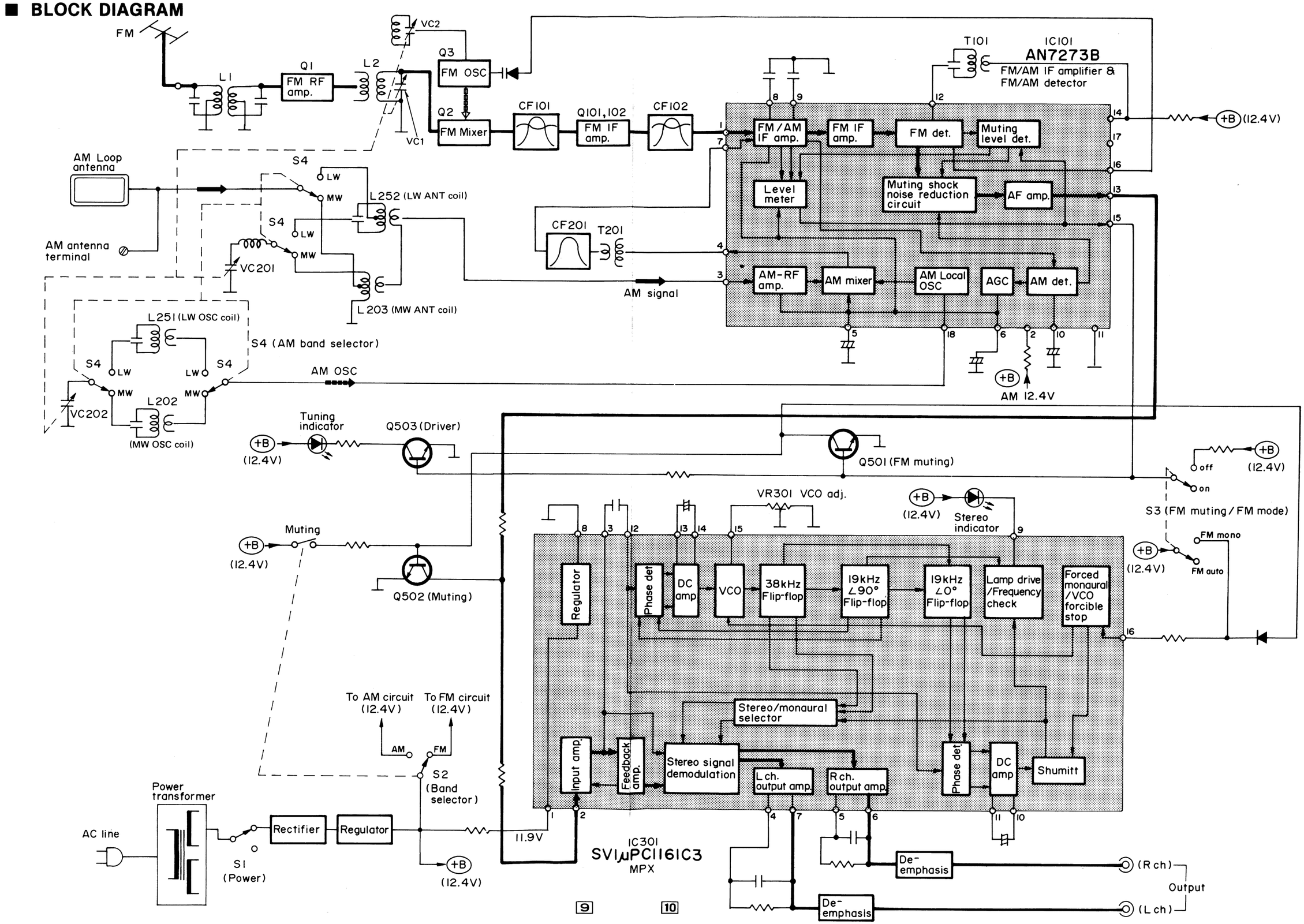
- **Terminal guide of transistors, IC's and diodes**

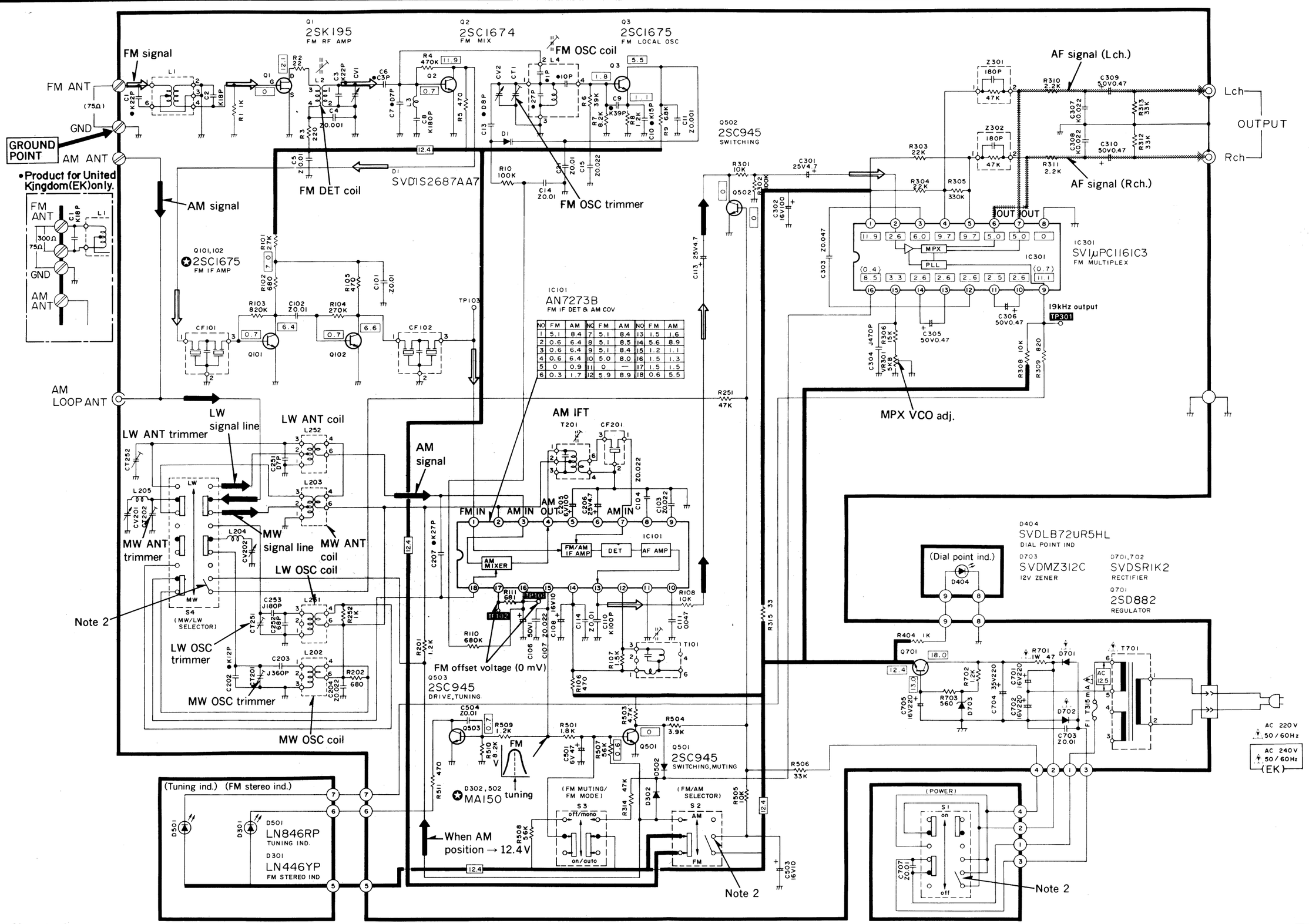


AN7273B	18 pin
SVIμPC1161C3	16 pin

2SC1674, 2SC1675 2SC945	2SD882
	
LN446YP, LN846RP	MA150
	
SVDMZ312C	SVDLB72UR5HL
	
2SK195	
	
SVD1S2687AA7	
	
SVDSR1K2	
	

■ BLOCK DIAGRAM





NO	FM	AM	NO	FM	AM	NO	FM	AM
1	5.1	8.4	7	5.1	8.4	13	1.5	1.6
2	0.6	6.4	8	5.1	8.5	14	5.6	8.9
3	0.6	6.4	9	5.1	8.4	15	1.2	1.1
4	0.6	6.4	10	5.0	8.0	16	1.5	1.3
5	0	0.9	11	0	—	17	1.5	1.5
6	0.3	1.7	12	5.9	8.9	18	0.6	5.5

■ SCHEM

(This schemat
development

Note 1: Th
the
Re
par
Th
ple

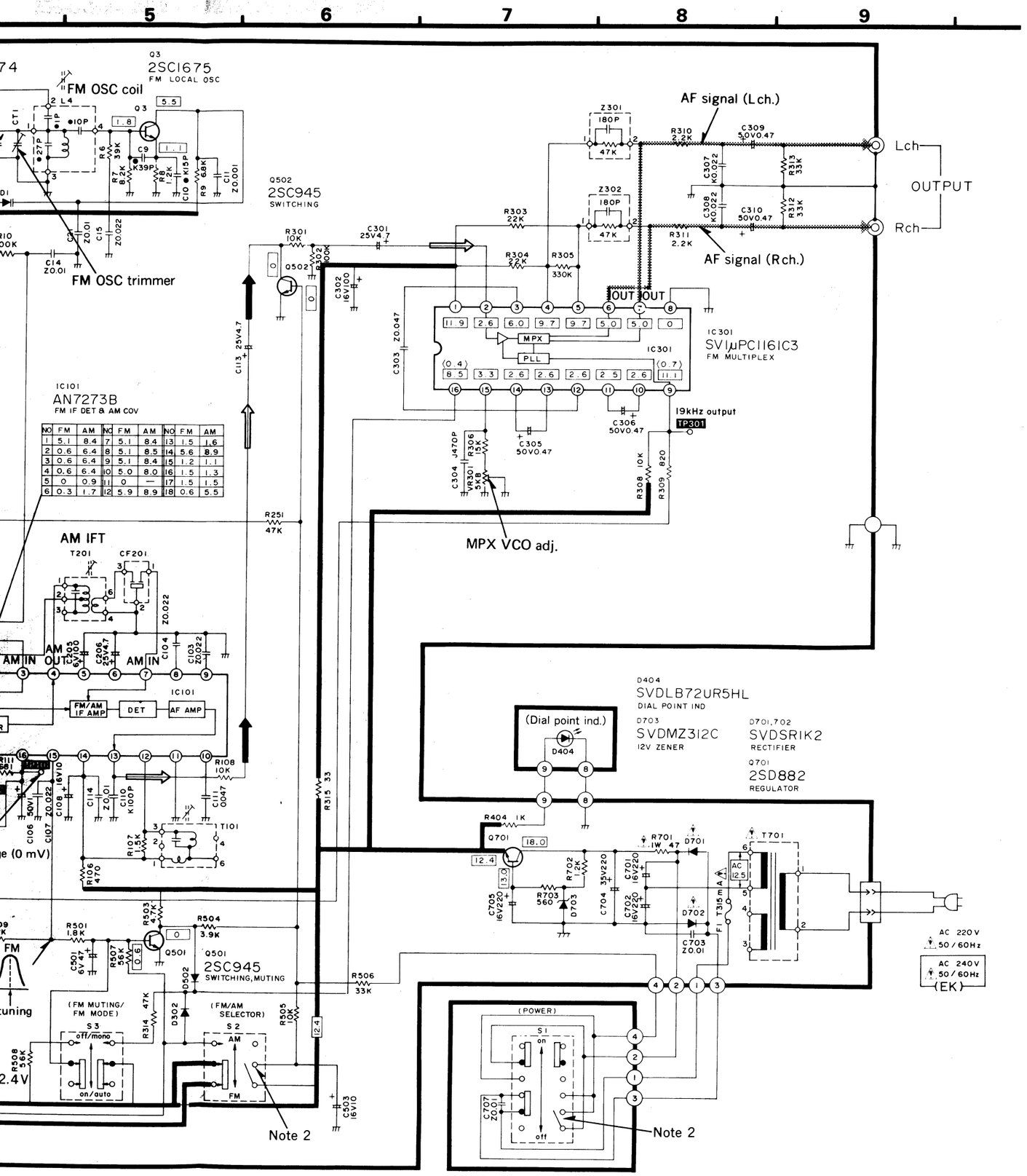
Note:

1. **S1** :
2. **S2** :
3. **S3** :
4. **S4** :
5. Indicated
the DC e
standard.
on the int
* Figures
* Figures
* Figures
6. P
7. Important
Compone
safety. W
specified

Note 2: M
Us

• **Shorting**
This unit use
is shorted to
In the circui
terminal.

Connected to c
Common A



■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Note 1: The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement part, please use the part No. in the replacement part list.

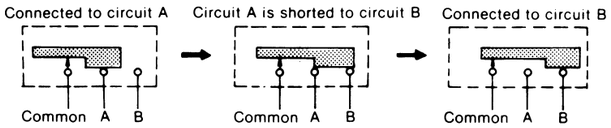
Note:

1. **S1** : Power source switch in "**on**" position.
2. **S2** : Band selector switch in "**FM**" position.
   FM◄►AM
3. **S3** : FM muting/FM mode selector switch in "**on/FM auto**" position.
   on/FM auto◄►off/FM mono
4. **S4** : AM band selector switch in "**MW**" position.
   MW◄►LW
5. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
   * Figures in [ ] stand for DC voltage in FM signal (no signal) mode.
   * Figures in < > stand for DC voltage in FM stereo signal reception mode.
   * Figures in ( ) stand for DC voltage in AM signal reception mode.
6. Positive voltage lines ▬▬ AF signal lines ▒▒
   FM signal ⇨ FM OSC ⇨
   AM (MW, LW) signal ▬▬► AM (MW, LW) OSC ▬▬►
7. Important safety notice.
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

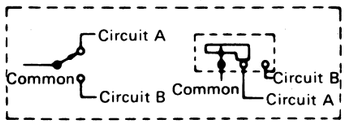
Note 2: Muting switch part. When switch is turned on it is positioned as shown only for a moment. Usually, it is not connected to the circuit.

• Shorting Switch

This unit uses a shorting switch. As illustated below, the circuit is shorted to the next circuit without being opened.
In the circuit diagram, the shaded area represents the common terminal.



An example of circuit diagram



■ REPLACEMENT PARTS LIST

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice:
   Components identified by △ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
3. Ⓚ -marked parts are used for black only, while ○-marked parts are for silver type only.
4. Part other than Ⓚ -and ○-marked are used for both black and silver type.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
6. The "Ⓢ" mark is service standard parts and may differ from production parts.
7. The parenthesized numbers in the column of description stand for the quantity per set.

Black type model No. : ST-Z35L (K)

Areas

* [EX] is available in Switzerland and Scandinavia.
* [EK] is available in United Kingdom.
* [EF] is available in France.
* [EB] is available in Belgium.

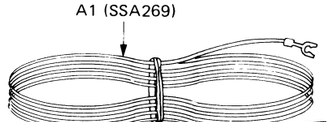
Ref. No.		Part No.	Description
INTEGRATED CIRCUITS			
IC101		AN7273B	FM/AM Detector
IC301		SVIUPC1161C3	FM MPX
TRANSISTORS			
Q1	S	2SK195-H2	FM RF Amplifier
Q2	S	2SC1674-M	FM Mixer
Q3	S	2SC1675-L	FM OSC
Q101,102	S	2SC1675-L	Switching Driver
Q501～503		2SC945-Q	Switching Driver
Q701		2SD793-P	Regulator(Product part is 2SD828-R)
DIODES			
D1		SVDIS2687AA7	AM Variable Capacitor
D301		LN446YP	L.E.D
D302	S	MA162A	Switching
D501		LN846RP	L.E.D
D502	S	MA162A	Switching
D701,702	△	SVDSR1K2	Rectifier
D703		SVDMZ312C	12V Zener
FUSE			
F1	△	XBA2C03TR0	250V T300mA
COILS			
L1		SLA4N39	FM Antenna
L2		SLD4P71-P	FM Detector
L3		SLQZ12G1-D	Choke
L4		SL04P121-P	FM OSC
L202		SL02C35-P	AM OSC
L203		SLA2C3-P	AM Antenna
L204,205		SLQZ12G1-D	Choke
L251		SL01C13-P	LW OSC
L252		SLA1C13-P	LW ANT
TRANSFORMERS			
T101		SLI4C539-P	FM IFT
T201		SLI2C139-M	AM IFT
T701(EK)	△	SLT5K125	Power Source
T701(other)	△	SLT5K123	Power Source
VARIABLE CAPACITORS			
CV1,2,201,202		SVCCB42T916	Variable Capacitor
CT1,201		ECRHA010A11	Trimmer,FM OSC and MW OSC
CT202		ECRHA020D11	Trimmer,MW Antenna
CT251,252		ECRHA020D11	Trimmer,LW OSC and LW Antenna
VARIABLE RESISTOR			
VR301		EVN75AA00B53	FM MPX 5KΩ·B
SWITCHES			
S1	△	SSH1099	Power Source
S2,3		SSH2031	Selector
S4		SSH1063	Muting
CERAMIC FILTERS			
CF101,102		SVFE107MS2-A	10.700MHz(Red)
		SVFE107MS2-B	10.675MHz(Blue)
		SVFE107MS2-C	10.725MHz (Orange)
		(Use pair ranks as same as CF101 and CF102)	
CF201		SVFSFU450B3	AM450KHz
COMPONENT COMBINATIONS			
Z301,302		EXRP181K473C	180PF×1, 47KΩ×1

Ref. No.		Part No.	Description	
CABINET and CHASSIS PARTS				
1		SGWTZ15LE	Front Panel Ass'y(Silver)	1
1	K	SGWTZ15LKE	Front Panel Ass'y(Black)	1
1-1		SKD4750-1	Dial Skale(Silver)	1
1-1	K	SKD4751-1	Dial Skale(Black)	1
2		SBC337-1	Botton,Power Source	1
3		SDR31	Drum	2
4		SWV47-1	Pointer,Dial	1
5		SHP61	Spacer,Pointer	1
6		SBC369-2	Button	3
7		SBN1091	Knob,Tuning	1
8		SDT8095-1	Frywheel	1
9		SDR39	Drum	2
10		SUB69	Connection Rod	1
11		SUB161	Connection Rod	2
12		SJT347	Terminal,Fuse	2
13		SHE129-1	Holder	1
14		SDD105	Drum	1
15		SUS295-1	Spring	1
16	△	SJS9229	Socket,Inlet	1
17(EK)		SJF8711N	Terminal Board	1
17(other)		SJF8607N	Terminal Board	1
18(EX)		SGPTZ35LE	Rear Panel Ass'y	1
18(EB)		SGPTZ35LB	Rear Panel Ass'y	1
18(EK)		SGPTZ35LK	Rear Panel Ass'y	1
18(EF)(MELUK)		SGPTZ35LF	Rear Panel Ass'y(Made in United Kingdom)	1
18-1		SKL245-2	Foot	4
19		SKC1390S	Cabinet(Silver)	1
19	K	SKC1390BB	Cabinet(Black)	1
20		SJT3213	Terminal	1
21		SJS5421	Terminal	1
22		SUS309	Spring	1
23		SGX7497-2	Grile(Silver)	1
23		SGX7497-3	Grile(Black)	1
24		SHR415	Pin	1
25		SDZ051-2	Cord,Dial	1
26		SHR5181	Spacer,P.C.B	1
27		SUR147	Bracket,Frywheel	1
28		SUW2017	Bracket,AC Socket	1
29		SUW1893-1	Bracket,Power Switch	1

Ref. No.		Part No.	Description	
SCREWS				
N1	S	XTB3+8BFZ	Tapping,+3×8	2
N2	S	XSN3+6S	+3×6	2
N3	S	XTB3+10BFN	Tapping,+3×10	2
N4	S	XTB3+8BFN	+3×8	2
N5	S	XTB3+8BFN	Tapping,+3×8	5
N6	S	XTB3+12BFZ	Tapping,+3×12	2
N7	S	XTB3+10BFZ	Tapping,+3×10	2
N8		SNE2095-1	Cabinet	2
N8	K	SNE2095-2	Cabinet	2
N9	S	XSN26+5	+2.6×5	1
WASHERES				
N15	S	XWA3B	Spring,φ3	2
N16	S	XWG3	plain,φ3	2
N17	S	XWA3B	Spring,φ3	2
N18	S	XWA26	Spring,φ3	2
NUTS				
N20	S	XNS11	Tuning Shaft,φ11	1
N21	S	XWD11B	Tuning Shaft,φ11	1
ACCESSORIES				
A1		SSA269	Antenna	1
A2		SJP2249	Cord	1
A3(EK)	△	SFDAC05G02	Cord,Power Source	1
A3(other)	△	SFDAC05E02	Cord,Power Source	1
A4(EK)		SQF11851	Instruction Book	1
A4(EX,EB)		SQF11829	Instruction Book	1
A4(EF)(MELUK)		SQF11853	Instruction Book(Made in United Kingdom)	1
A5		SSA611-1	Antenna	1
A6		SMA231	Holder	1
A7		SMA233-1	Holder	1
A8		XTN3+10AFZ	Tapping,+3×10	2
PACKING PARTS				
P1(EF)(MELUK)		SPG4517	Carton Box(Made in United Kingdom)	1
P1(Other)		SPG4531	Carton Box	1
P2		SPS3993	Pad,Left	1
P3		SPS3995	Pad,Right	1
P4		SPS4001	Pad,	1
P5		SPP711	Polyethylene Bag	1

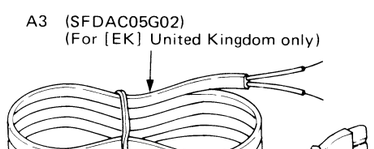
• Accessories

A1 (SSA269)

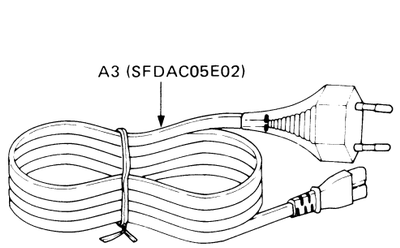


A2 (SJP2249)

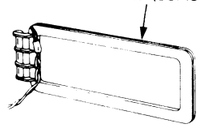
A3 (SFDAC05G02)
(For [EK] United Kingdom only)



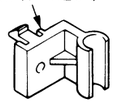
A3 (SFDAC05E02)



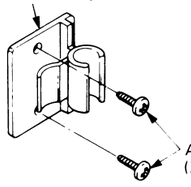
A5 (SSA611-1)



A6 (SMA231)

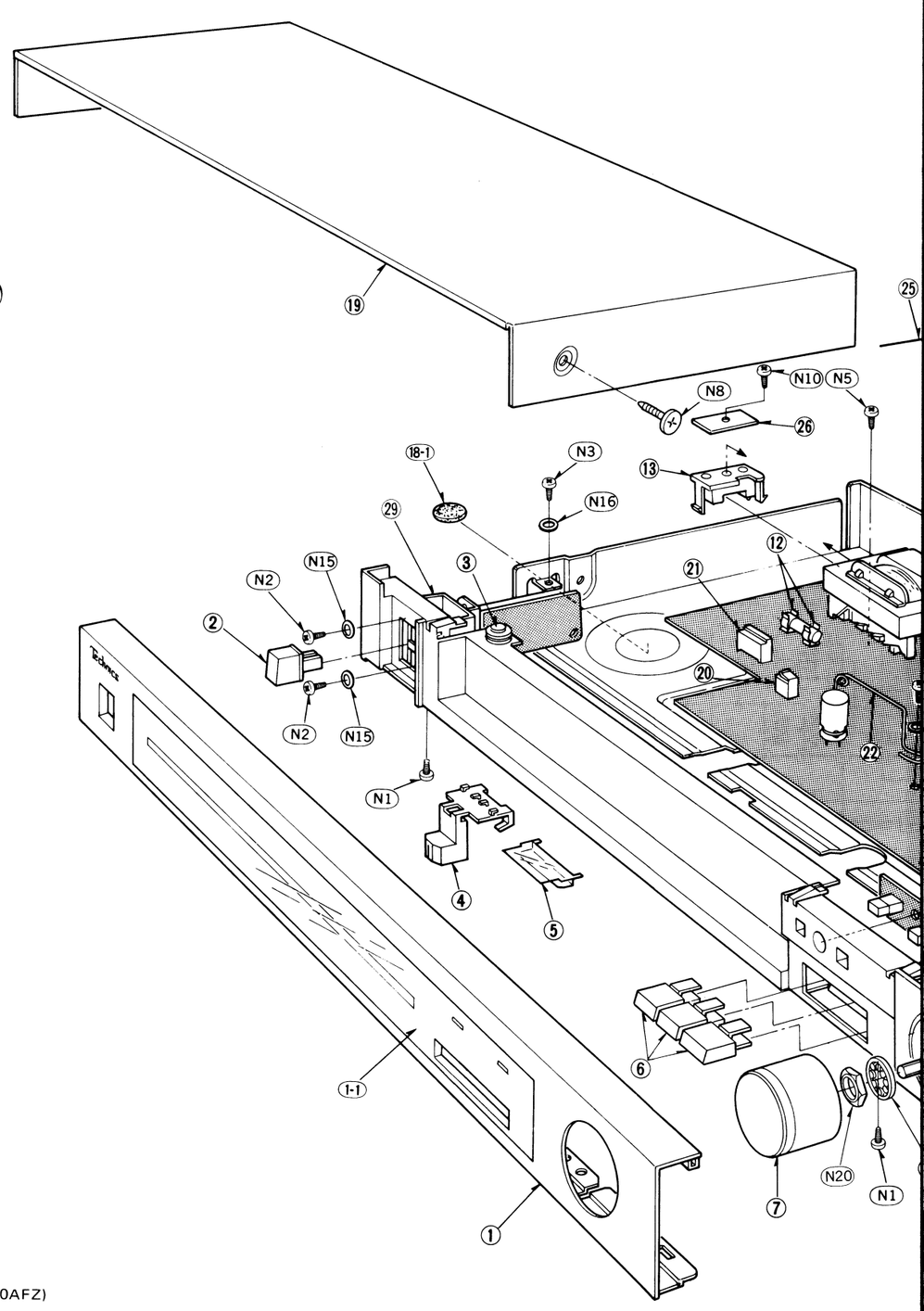


A7 (SMA233-1)



A8
(XTN3+10AFZ)

■ EXPLODED VIEW



arts and may differ

olumn of description

35L (K)

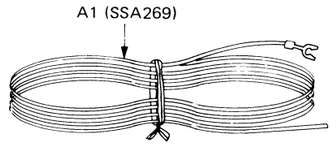
and and

Kingdom.

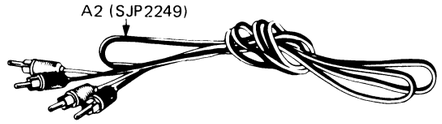
	Description
2	Tapping, +3×8
2	+3×6
2	Tapping, +3×10
2	+3×8
5	Tapping, +3×8
2	Tapping, +3×12
2	Tapping, +3×10
2	Cabinet
2	Cabinet
1	+2.6×5
2	Spring, ϕ3
2	plain, ϕ3
2	Spring, ϕ3
2	Spring, ϕ3
1	Tuning Shaft, ϕ11
1	Tuning Shaft, ϕ11
1	Antenna
1	Cord
1	Cord,Power Source
1	Cord,Power Source
1	Instruction Book
1	Instruction Book
1	Instruction Book(Made in United Kingdom)
1	Antenna
1	Holder
1	Holder
2	Tapping, +3×10
1	Carton Box(Made in United Kingdom)
1	Carton Box
1	Pad,Left
1	Pad,Right
1	Pad,
1	Polyethylene Bag

• Accessories

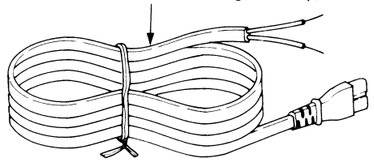
A1 (SSA269)



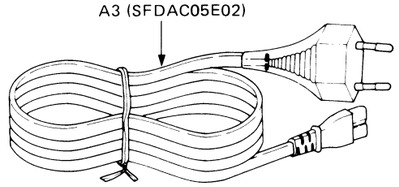
A2 (SJP2249)



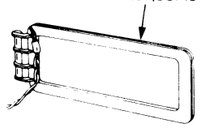
A3 (SFDAC05G02)
(For [EK] United Kingdom only)



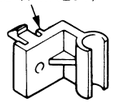
A3 (SFDAC05E02)



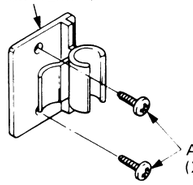
A5 (SSA611-1)



A6 (SMA231)

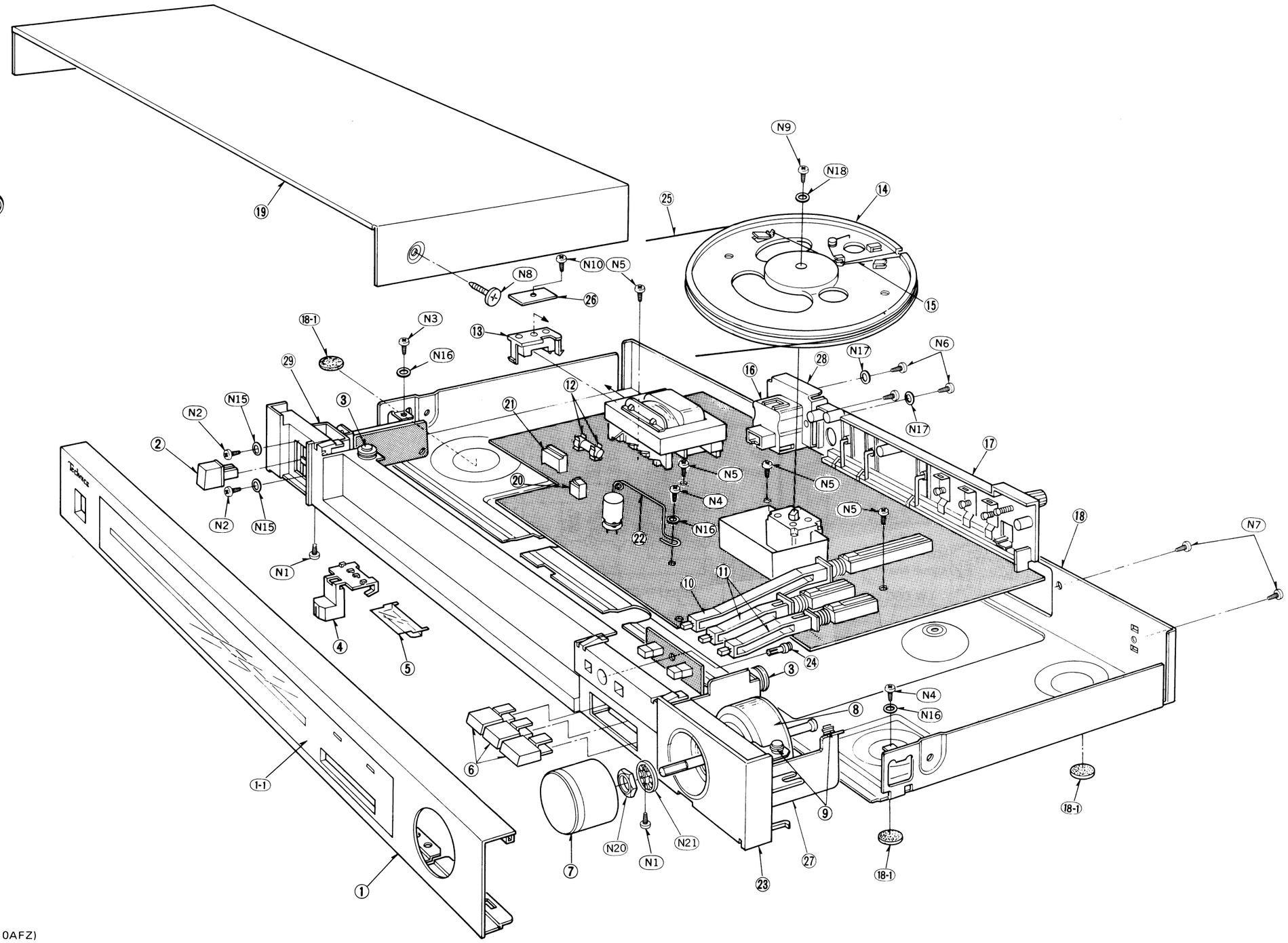


A7 (SMA233-1)



A8
(XTN3+10AFZ)

■ EXPLODED VIEW



Printed in Japan
830703800 Ⓗ YK/IM